

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listings of the claims in this application.

LISTING OF THE CLAIMS:

Claims 1 - 8. (Canceled)

9. (New) A method of decontaminating heavy metal contaminated soil or sludge which includes

- a) treating soil or sludge with an acid at a pH below 2 in a first treatment stage to form a liquid and a solid phase with a solids content from 5 to 30%
- b) separating the liquid and solid phases from the first treatment stage
- c) mixing the solid phase from the first treatment stage with a fresh acid liquid at a pH below 2 in a second treatment stage to form a liquid and a solid phase with a solids content from 5 to 30%
- d) separating the liquid and solid phases from the second treatment stage
- e) treating the liquid separated in step b) from the first treatment stage to precipitate heavy metals
- f) separating the precipitated heavy metals from the liquid of step e) and recycling the liquid for use in the process
- g) treating the solids from step d) to adjust the pH to a level acceptable for a soil conditioner or fertilizer
- h) using the liquid from step d) as the acidic liquid in the first treatment stage for fresh batches of soil or sludge.

10. (New) A method as claimed in claim 9 in which the acid is sulfuric acid.

11. (New) A method as claimed in claim 9 in which the heavy metals are precipitated by adding a base to adjust the pH of the liquid to precipitate the metals as salts

12. (New) A method as claimed in claim 11 in which the base is potassium hydroxide.

13. (New) A method as claimed in claim 9 in which the solids from step d) are blended with crushed limestone.

14. (New) A method as claimed in claim 9 in which the first and second treatment stages are carried out in closed vessels containing a source of ozone in the head space of the closed vessels.

15. (New) A method of decontaminating contaminated soil or sludge which includes sulfur containing materials which method includes

- a) treating sulphur containing soil or sludge with an acid at a pH below 2 in a closed vessel containing a source of ozone in the head space of the closed vessel to form a liquid and a solid phase with a solids content from 5 to 30%
- b) separating the liquid and solid phases from the closed vessel
- c) treating the liquid separated in step b) to precipitate heavy metals
- d) separating the precipitated metals from the liquid of step c) and recycling the liquid for reuse in the process
- e) treating the solid phase from step b) to adjust the pH to a level acceptable for a soil conditioner or fertilizer

16. (New) A method as claimed in claim 7 wherein the ozone is externally generated and introduced into the head space.